THE BRITISH COLUMBIA COMMITTEE ON THE UNDERGRADUATE PROGRAM IN MATHEMATICS

MINUTES OF THE 78TH MEETING, MAY 25-27, 2000

THURSDAY, MAY 25, 2000

1. **WELCOME BY THE VICE-PRESIDENT (EDUCATION) OF CAMOSUN COLLEGE** - Dr. Robert Priebe

   Dr. Robert Priebe welcomed us to Camosun and gave us a summary of interesting projects and developments at Camosun College.

2. **ADOPTION OF THE AGENDA FOR THE 78TH MEETING OF THE BCCUPM**

   Motion: by Judy Malcolm and seconded by Veda Abu-Bakare **that the agenda be approved as presented.**

   <div align="right">Carried.</div>

3. **ADOPTION OF THE MINUTES OF THE 77TH MEETING, HELD AT OKANAGAN UNIVERSITY COLLEGE**

   The Committee expressed interest in having the names of movers/seconders of BCCUPM motions recorded in the Minutes. The Committee then passed a motion* that the Minutes of the 77th Meeting be adopted as presented. The Secretary was thanked for her excellent work in recording and preparing the Minutes of the BCCUPM.

4. **CORRESPONDENCE**

   Leo read an e-mail from Robb Fry, formerly from UNBC, now at St. Francis Xavier, expressing his regret in having to miss this Meeting and announcing his imminent nuptials (June).

5. **ANNOUNCEMENTS**

   5.1 **Notice of Elections:** At this Meeting, an election for Chair of the BCCUPM and for Chair of the Statistics Subcommittee will be held.

   Leo Neufeld was acclaimed as chair for two more years and Veda Abu-Bakare was acclaimed as chair of the Statistics Subcommittee.

   5.2 **Meetings/Conferences**

   The Annual Spring Meeting of the Pacific Northwest Section of the Mathematical Association of America will be held June 15 - 17, 2000, at UBC. The 39th Northwest Mathematics Conference (NCTM) will be held October, 19 - 21, 2000, at the Conference Centre in Victoria, BC.

   5.3 **Math Centres Study**

   Susan Milner announced that she had been given some release time to study aspects of existing math centres in BC post-secondary institutions and she requested the co-operation of members in completing a questionnaire to assist in initiating her study.

* *Because the original set of these Minutes was stolen, some details could not be reconstructed.*

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6.   Talk: **Challenges in the New Millennium** – Bette Bultena (Barrodale Computing Services)

Bette Bultena gave a very interesting, informative talk on the applications of mathematics in computer mapping. The illustrations she provided from first-hand experience in this field and her appreciation of the importance of mathematics in it added significantly to the relevance of her comments to our Meeting's theme.

7.   **DISCRETE/FINITE MATHEMATICS, MATHEMATICS FOR ELEMENTARY EDUCATION AND STATISTICS SUBCOMMITTEE SESSION** (held concurrently/ reports below)

8.   **REPORTS FROM DISCRETE/FINITE MATH, MATH FOR ELEMENTARY ED AND STATISTICS SESSIONS.**

Discrete/Finite Math Session

Di/Fi1.   How are Discrete and Finite Mathematics courses viewed?
          [Presenters: Rick Brewster (Capilano) and Fred Hughes (Camosun)]
          Discrete Math courses give computer science students math literacy and math students exposure to computer science.   They are also taken by philosophy, psychology, and business students because of their logic/cognitive
          aspects. The prerequisite is Principles of Math 12. It is appropriate to offer two courses because of the depth and breadth of the material. Logic and proofs should be taught in the first course.

Di/Fi2.   Reports on Existing Discrete and Finite Math Courses.
          There seems to be no standard curriculum for Discrete Math or Finite Math courses. Prerequisites vary and the number of courses required for various programmes also varies. The Universities and some of the Colleges offer either one or two Discrete Math courses. The curriculum varies but is almost universally driven by the requirements of Computer Science departments and programmes. Most Colleges offered either Discrete Math or Finite Math, but not both. Most consider Finite Math to be a terminal course, with the exception of those going on to Statistics. It teaches problem solving and computation, but there is no abstraction or proofs.

Di/Fi3.   Discussion of issues related to Discrete and Finite Math courses.
          [Including Math Proficiencies Report and Task Force Report Recommendations]
          Most institutions cover the Simplex Method. There was some question about how much Simplex should be included; e.g. standard Max, standard Min, the Duality Theorem, slack variables, number of variables 3,4, … 12,more? Most institutions offer only a <u>one term</u> Finite Math course and have a Grade 12 Math pre-requisite.

Di/Fi4.   Conclusions and Recommendations for the Plenary Session

Math For Elementary Education Session

MFEE1   What actually is Mathematics for Elementary Education?
        [Presenter: Susan Milner (University College of the Fraser Valley)]

MFEE2   Report on Existing Mathematics for Elementary Education courses.
        The University of Victoria requires 2 math courses for entry into the third year of a Bachelor's programme while UBC and SFU require only one course.   The other groups reported back.

MFEE3   Discussion of issues related to MFEE and to courses transferring as such.
        It was generally felt that it would be better if students would be required to take two MFEE courses, but the College of Teachers is resistant to this.

MFEE4   Conclusions and Recommendations for the Plenary Session.
        The group agreed to endorse the recommendations of the Ministry Task Force.

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Statistics Subcommittee

Present: Veda Abu-Bakare (BCOU), Aubie Anisef (Douglas), Ed Butz (UCFV), Bill Calver (Camosun), Susan Chen (Camosun), David Feldman (Selkirk), Harry Joe (UBC), Tony Webb (BCIT), Larry Weldon (SFU).

The following items were considered:

1)   Software Site Licenses

Our guest, Susan Weber (AEMAC), explained that AEMAC (Advanced Education Media Acquisitions Centre) is a Ministry-funded provincial service bureau for the post-secondary system. It negotiates and signs licenses for software and video. Once the software has been selected by the Articulation Committee, Susan steps in to get the best possible price. Because of our discussion at the May 99 meeting, Susan has been in touch with Minitab and their offer is based on a buy-in of 2/3 of the 29 institutions. Susan reiterated that she needs to know what our software of choice is and the number of installs in the institution (not just in the Math/Stats Departments) and then she can proceed.

We went around the table to see what software was being used - the responses were none (students use a scientific/graphing calculator), Excel, Minitab, SPSS, SGP, JMP In, and Statdisk (a software package that comes with the text). Harry Joe of UBC said that their agreement with JMP In (a SAS product) was that the company would install the software free on as many machines as requested in return for the Bookstore selling 50 copies of the student version and that he didn't think that they even checked! There was no outright leader and it was clear that people wanted the flexibility to make their own choices.

The following Recommendation was agreed upon: that the Stats Subcommittee does not wish to pursue a particular software product at this time; that we will undertake a usage survey of all post-secondary institutions; and that we will then request Susan Weber of AEMAC to present this information to vendors of the various statistical software products with a view to obtaining the best price.

2) Online course in Stats:

a) Larry Weldon demonstrated his course which uses First-Class, a conferencing software. The Web version can be accessed at *http://firstclass.sfu.ca/* . The first thing to note is that there is no content online. The students get a text (print) and they are guided through the course by a study guide (print) and the work posted online. There is scope for both individual and group work. Each assignment covers 2 weeks of work. The questions are usually open-ended, requiring discussion. This forces the students to verbalize about what they know or don't know. The students work in groups of 4 or 5; there is 1 tutor-marker for about 50 students. The students are required to hand in their assignments electronically and to use Minitab in their assignments. There is one mid-term exam online but the students come in to write the final exam during the exam period in the conventional exam setting.

The speed of responses is quite fast - questions are usually answered the same day. Student interaction is greater, both among the students and between student and instructor. The marking does take longer. Most of the interaction is text-based, although it is possible to send a graphic in a First-Class message.

b) Veda mentioned the work done by Robin Susanto of Langara. He has developed a Web-module on Sampling Distributions. The URL is www.langara.bc.ca/~susanto/index.htm.

c) Online resources for Stats are also to be found in Alan Cooper's Web resources project to be found at www.langara.bc.ca/~acooper .

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3) Intro Stats course maintenance:

In May 98, we had listed as Core Topics for an Intro Stats course (with a Grade 11 prerequisite):

1.   Overview of the subject and the opportunities for its applications in real-life situations; vocabulary.
2.   Data production - randomness, sampling methods, bias, variability, etc.
3.   Exploratory statistics
        Univariate- graphical display, measures of centre and spread
        Bivariate - graphical displays, correlation, linear regression, chi-square analyses
4.   Some probability - tree diagrams, sample space, independent and mutually exclusive events.
5.   Sampling distribution of the mean and of the proportion.
6.   Inference (Confidence intervals and hypothesis testing) for the population mean and the population proportion.

Here are the comments:

a) It was suggested that we take out the chi-square analysis in (3) and save it for later. That is, we would do contingency tables in (3) and the chi-square analysis in Inference.

b) One member expressed the opinion that what is taught in any given semester is entirely personal and depends on the instructor. (Added in proof - I see this as unsatisfactory. The idea is that we must have a list of core topics to establish benchmarks, ensure transferability, and to give guidance to instructors of these courses who are, quite often, not statisticians.)

c) The amount of probability to be included is, as always, a matter of discussion. As UBC pointed out, they have a stats course with no probability and a probability course with no stats. The suggestion is that only a minimum amount of probability is to be taught to facilitate the understanding of sampling distributions and the Central Limit Theorem.

d) It was suggested that we include the 2-sample comparisons.

4) Intro Stats Course with a Calculus prerequisite

One member wanted some guidance in what would be the difference in an Intro Stats course with a Calculus prerequisite and one with a Grade 11 prerequisite. The responses were that the language changes - there is more of an algebraic approach and greater use of mathematical notation. More distributions are added - the binomial, the hypergeometric and the exponential.

5) Course in SPC (Statistical Process Control)

One member wanted to know if there were any courses developed in SPC - not just xbar charts and control limits. This can be something that institutions might wish to take up.

6) Textbooks and Video Set for Intro Stats

a) For guidance for instructors of Intro Stats courses, we listed some of the texts in use:
-Moore and McCabe, *Basic Practice of Statistics* and *Introduction to the Practice of Statistics.*
-Weiss, *Introductory Statistics*
-1st Canadian edition of Triola
-*Understanding data; principles and practice of Statistics* (Larry Weldon, co-author). Information on this text can be found at www.cast.massey.ac.nz . You may use the user id guest with the password 1111.
-Samuels, 2nd edition.

b) *Against all Odds* is a Video set for Intro stats. One institution got this free with the adoption of one of the Moore and McCabe texts.

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7) General Comments

a) It is important that we liaise with the high-schools. From September 2001, the probability and stats section of the Principles 12 curriculum will be about 25%. There is opportunity for institutions to mount courses, workshops, etc. for in-service training for teachers. Also, since teachers invariably teach to the exam, we should have some input in the exam. Larry and Veda expressed interest in following up on the exam.

b) Many institutions expressed interest in having projects in their courses. Veda is to post something about the mandatory project in Langara's stat courses.

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THURSDAY, MAY 25, 2000 (Late Afternoon with Secondary Teachers)

1. **Introduction and Opening Remarks**

2. **BC Colleges High School Mathematics Contest Report – Jim Totten** (see attachment 2, page 16)

3. **BC Universities Calculus Challenge Examination** – John Fournier

    The Universities now offer a Calculus Challenge Examination for secondary students who have completed locally developed Calculus courses. The exam is scheduled in June for a fee of $77 and will rotate around the universities. At UBC there is no indication on a transcript that credit was obtained as the result of a challenge.

4. **College/Secondary School Partnership Initiatives**

    Camosun College partnered with the secondary schools and offered Maple labs as a supplement to Calculus 12 students. Dan Bergerud reported that students receive co-op credit for this experience.

5. **General Discussion**

6. **Adjourn to Reception**

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FRIDAY, MAY 26, 2000

1. **INTRODUCTION OF REPRESENTATIVES AND OPENING REMARKS.**

2. **REPORTS**

    2.1 B.C. Council on Admissions and Transfers

    a) **Meeting of Articulation Chairs** – Leo Neufeld
        Items to note from this year's meeting were: Canadian Learning Bank, the TAP fund, telecommunication in articulation and articulation committee initiatives. BCCAT has a new Co-Chair: Dr. Robert Brown.

    b) **Articulation Committee Liaison Administrators** – David Leeming
        David reported on the discussions at the Articulation Chairs Meeting relating to the role of Liaison Administrator.

        Motion: that, while we are very happy with the present Liaison Administrator for the BCCUPM, we not seek a replacement for our LA when he retires from this position.

                                                                                            Carried.

        All agreed that Eric Buckley has been an active member of the BCCUPM and has performed his duties as LA admirably. However, there appeared to be no foreseeable benefit to the BCCUPM of having an LA.

    2.2 Math Resources on the Web Subcommittee – Alan Cooper

    Over this first year of the project, there have been some ups and some downs. After putting together a draft proposal over the summer (see http://www.langara.bc.ca/~acooper/MathWeb/99/proposal/index.htm) and getting a number of reasonably high profile endorsements in principle, I did a bit of an update of the material and organization of the site and the result was quite favourably reviewed by the "Internet Scout Project" in September of 1999 (see http://scout.cs.wisc.edu/report/sci-eng/1999/se-990901.html#8), and since then we have also been featured in the librarians' journal 'Choice'.

    The Industry Canada (CANARIE/Schoolnet) call for proposals in 1999 seemed to be emphasizing more high bandwidth real-time networking issues, so I didn't apply to them. I did however apply for a small CMS Endowment Fund Grant and was reasonably optimistic, but in the end it didn't come through. I was a bit discouraged at that, but have got a lot of positive feedback from members of the CMS Electronic Services Committee and plan to apply again this year.

    I have been remiss in not setting up the listserv, but the volume of responses to my summer email hardly justified the effort. Neither the bccupm list nor June Lester's webmath listserv seem to be overloaded so I decided there was no need to open another 'channel' at this time. For now I suggest that we just use the bccupm listserv with message subjects starting with "WRC" (so that if the volume does get high those who do not want to participate can easily screen us out).

    If any of you have had difficulty in using the guide to locate material on any specific topic please do send me an email, and also of course please do so if you have come across (or have created) any useful web-based resources that I have not yet included.

    2.3 Ministry of Education - Bruce McAskill (see attachment 3, page 19)

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2.4 BCAMT – Andrew Wong (see attachment 4, page 22)

There was a discussion about the Calculus 12 course that can be offered in schools effective September 2000. It will replace locally developed and AP Calculus courses. There is no Provincial Exam, but students can write the Universities' Challenge Exam.

Motion: by Alan Cooper and seconded by Jim Totten **that the BCCUPM ask member institutions to look at the Calculus 12 as a possible common core for 1st year Calculus for the purpose of transfer and equivalence.**

Carried

2.5 PIMS – Changing the Culture 2000

David Lidstone reported that the Challenging the Culture conference had been very successful again this year and that the talk by Professor Coxeter had been real highlight.

2.6 ABE - Ruth Behnke (see attachment 5, page 23)

3. BUSINESS ARISING FROM THE MINUTES OF THE 77TH MEETING

3.1 Model Courses Initiative – Richard Hallett

Selkirk College has developed an on-line Calculus course for grade 12 students. The students write a Final Exam set by the College – 50% of the grade is based on the school mark and 50% is the exam. It gives them 1st year credit so they can go on with 2nd year.

3.2 Mathematics Proficiencies On-line – Leo Neufeld

A summary of Leo's report is now on-line at: http://www.camosun.bc.ca/~bccupm . The intended audience is pre-calculus students (and their teachers) who want to know what is expected of them in post-secondary mathematics courses.

4.   INSTITUTIONAL/ARTICULATION BUSINESS

 4.1 Reports from Institutions

- **CAMOSUN** – Peggy Tilley

  I would like to report on one successful experiment. Our prerequisite for Math 100, the first year calculus course for science students, is a B in Math 12. This past two years we have offered one section of a combined pre-calculus/calculus course in the fall term primarily for grade 12 students with a C who need calculus. We doubled the class hours from one to two hours a day. We were able to complete the pre-calculus material in about 6 weeks and then used the last 8 weeks of the term for calculus. The students not only had a strong math background when they hit calculus, they also had a strong work ethic. Consequently, they did well in Math 100 and continued to do well in the winter term in Math 101. Since they only had one hour of math daily in the winter, some reported that Math 101 moved slowly!

- **DOUGLAS**

  We have had a relatively quiet year at Douglas this year. We have completed the transition to an early transcendentals approach in our first-year Calculus stream. Expansion of offerings at the new David Lam Campus in Coquitlam have helped ease some of the enrolment pressure, but demand still exceeds supply for basic algebra courses and our first discrete math course. Enrolment in our second year courses continues to grow. Work has begun of the development of a calculus-based statistics course. This year's budget has provided for ongoing funding for our Maple site license, and has allowed us to regularize the Math Tutor position at the David Lam Campus. We had several concurrent studies students take our Calc I course this year with great success. (These students take college Math and Science courses while still in high school.) Last, but not least, Natasha Davidson is now Chair of Mathematics for a two-year term.

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- **FRASER VALLEY**

  It's been an exciting year. Our math majors were finally approved - one in the BSc degree and one in the BA degree. Students can now combine a math major with any of the science and arts minors, as well as with the business minor.

  The news of the impending majors got out early enough to influence enrolments for the 1999/2000 academic year. First-year enrolments in calculus, pre-calculus, MFEE, and statistics have always been very healthy but overflowed this year. The first-year discrete math filled nicely (the computing department is upgrading its entrance requirements in mathematics and is increasingly supportive of our offerings.) Enrolment in second-year courses saw the biggest change to reach an all-time high, and upper-level enrolment also made a big leap.

  Four years after losing a continuing position due to illness, we have just got the news that we have a new position. The job will be posted in June 2000, but the interviews will not start until the fall. The position is to start in either January or July 2001. Please let any likely instructors know -- we'll be looking for a statistician, preferably with an applied background.

  Organizational restructuring continues. Wayne Welsh, whom some of you may remember from articulation meetings in the 1980s, left his post as Dean of Science and Technology to become VP Academic - our first ever.

  After years of lobbying on the part of the math department and its students, our Math Centre has been recognized as making a valuable contribution to student life. We have been encouraged to think that the Centre will receive more money next year, perhaps even get its own line in the budget, rather than having to rely on our department's being able to pay for staffing it. As part of the restructuring of the institution, the Math Centre is meant to be grouped with the Writing Centre and other instruction-related services, which should give it more clout.

- **NEW CALEDONIA** - Judy Malcolm
  1. For the first time since 1990, Finite Math (Math 103) ran again. The target group for that course had been taking Math for Elementary School Teachers instead, but this January, there was enough enrollment to offer it.
  2. Our Elementary Statistics instructors read with interest the recommendations from the Statistics subcommittee at the last articulation meeting. So they incorporated the ideas this year and used the preliminary edition of "Interactive Statistics" by Aliaga and Gunderson (Prentice Hall)
  3. Our first two semesters experience with Maple V labs went very well. The students had an hour lab every second week in Differential and in Integral Calculus. The feed-back from students was generally positive and the same from the instructors.

- **OKANAGAN** – Clint Lee
  Curriculum
  Four new courses have been introduced: Math 321 - Analysis III, Math 450 - Continuous Optimization, Math 460 - Topics in Industrial Mathematics, and Math 448 - Directed Studies. Math 226 - Analysis I has been renumbered as Math 220. An on-line version of Math 120 - Precalculus has been developed and will be offered for the first time in September 2000 as a distance education course. Math 120 is still not in base budget and the new regularization accord at OUC makes it difficult to offer this course as a cost-recovery course through Continuing Education. We offered one section of Calculus I and II in the evening at our Vernon campus to attract high school students. We got three students in the first semester. Two did very well and all three passed. None went on to take the second semester.
  Directed Studies
  Five students took Math 448 - Directed Studies this year. This is a big deal for the Math/Stats Department. Other departments in the Faculty of Science have been offering directed studies courses for several years. Students have to prepare either an undergraduate thesis or a poster. Students from the directed studies course together with a faculty member participated in a science student poster session at Fraser Valley this year.
  Recruitment
  We are in the process of hiring a statistician, again. This time it is a continuing position. Interviewing is in progress and the position should be filled for September 2000. Greg Reid has resigned. His position is being filled through regularization. We are losing another faculty member next year. We hope to be able to fill the vacant position next year, though it is becoming more difficult to obtain authorization to fill vacant positions.
  Regularization

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Regularization at OUC has been a major pre-occupation. The Math/Stats Department should emerge the better for it once the dust has settled. At least two long time sessional faculty should be regularized into full-time continuing positions, with the possibility of a third, at least half-time continuing regularization.

Achievements

Two of our graduates have received NSERC graduate scholarships and three are going on to UVic for secondary teaching certificates. Several faculty members have received NSERC grants. Three faculty members have received NSERC Equipment Grants totaling $15000. The OUC Math/Stats Department continues its partnerships with local high tech industries. Heinze Bauschke has been bought out for the fall semester again this year to do research and development work with Workfire Development Corporation. Such partnerships are providing OUC students with part-time and summer job opportunities. The Trig Files project may be finished this summer. It was originally intended as a CD-ROM project but is now being reconfigured for delivery on the internet.

- **UNBC** – David Casperson

  Program Review – As part of the cyclical degree review process at UNBC the mathematics program was reviewed this spring. The external reviewers were Professor David Leeming (U.Vic.) and Professor David Poole (Trent).

  Enrollment – EET's: Between Fall 1999 and Winter 2000 there were approximately 1350 registrations in courses with MATH numbers. Majors: There were 34 declared Mathematics majors enrolled in Winter 2000 or intending to enroll in Fall 2000. Of these one is a joint major with Chemistry, two are joint majors with Physics, and three are joint majors with Computer Science. Graduate: There is one graduate student in Mathematics, and one graduate student is finishing an interdisciplinary degree partly in Mathematics. UNBC has had an M.Sc. with a Mathematics option since Fall of 1997.

  Faculty Complement – As of May 2000, there are three tenured or tenure-track faculty members, including the Chair of Mathematics and Computer Science who also teaches one CS course. There are five full-time term instructors (one of whom also teaches Physics).

  Resignations – In the past year the UNBC Mathematics department has had three tenured faculty members resign to accept positions elsewhere. Dr. Ross Niebergall is now with Lucent Technologies. Dr. Vladimir Vinogradov is at Ohio State and Dr. Bruno Zumbo (formerly cross-appointed with Psychology) is going to UBC.

  Hirings – The department is currently interviewing for two more tenure-track faculty positions and has advertised for one sabbatical replacement term position in Mathematics. The department expects to have another position approved soon.

  Promotions – Dr. Jennifer Hyndman receives tenure effective 1 July, 2000. Dr. Lee Keener began a second five-year term as Chair on 1 July, 1999.

  Sabbaticals – Dr. Walters begins a year-long sabbatical 1 July, 2000. Dr. Hyndman begins a year-long sabbatical 1 July, 2001.

4.2 List Updates: Mailing, Telephone, Fax and E-mail

Lists were circulated for revisions and updates.

4.3 BCCUPM Web Site

Our site has now been on-line since 1998. Members were urged to help keep its information current by sending any changes along to Leo Neufeld.

5. NEW BUSINESS

5.1 BCCUPM Terms of Reference

There was some discussion about changing our name to include "Statistics".

5.2 Minutes of BCCUPM Meetings

The manner in which to distribute Minutes was discussed briefly. It was decided to raise the matter again next year.

5.3 Cost-Sharing in Hosting BCCUPM Meetings

There was some discussion on the cost of hosting meetings. Most institutions cover the cost of one lunch and are usually willing to fund up to the amount for a representative to attend an articulation meeting. Camosun provided

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two lunches and felt the strain on their budget. Most representatives agreed that we could pay for one of our own lunches in future and submit expenses to our institutions.

5.4 Theme for the 79th Meeting of the BCCUPM
a) Calculus I and II core curriculum, in particular using Calculus 12 as a model for Calculus I
b) the use of technology (calculators, computers, web resources) in Math courses.

6. DATE AND LOCATION OF THE 79TH MEETING

The 79th meeting of the BCCUPM will be held at College of the Rockies in Cranbrook. The tentative dates were May 24-26, 2000.

7. ADJOURNMENT OF THE FRIDAY SESSION

Many, many thanks to Camosun College for all their work in hosting us for this meeting.

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SATURDAY, MAY 27, 2000 (Morning)

1. Using the Internet

1.1 WebCT - How it enhances your Math/Stats course - Martin Buck
1.2 Math Resources on the Web - Alan Cooper

2. Investigating Patterns - Symmetry and Tessellations - Jill Britton
[Escher Art and the Internet]

3. Statistics Presentations
3.1 Minitab for Windows and JMP In - Travis Taylor
3.2 Minitab in the Statistics Lab - Bill Calver/Susan Chen
3.3 StatGraphics Plus - Veda Abu-Bakare

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List of Committee Members Present (Plenary Session – Thursday, 2000-05-25)

Veda Abu-Bakare	BC Open University/Langara College
Ian Affleck	Capilano College
Jim Bailey	College of the Rockies
Ruth Behnke	Vancouver Community College
Rick Brewster	Capilano College
Jill Britton	Camosun College
Ed Butz	Okanagan University College
Bill Calver	Camosun College
Jane Cannon	University College of the Fraser Valley
David Casperson	University of Northern BC
Mohamed Chabi	Northern Lights College
Susan Chen	Camosun College
Neil Coburn	Selkirk College
Tim Collings	Technical University of BC
Natasha Davidson	Douglas College
David Feldman	Selkirk College
Fred Hughes	Camosun College
Mona Izumi	Northwest Community College
Bruce Kadonoff	Coquitlam College
Alistair Lachlan	Simon Fraser University
Clint Lee	Okanagan University College
David Leeming	University of Victoria
Dave Lidstone	Langara College
Gary MacGillivray	University of Victoria
Jean MacLeod	Vancouver Community College
Judy Malcolm	College of New Caledonia
Casey McConill	Kwantlen University College
Susan Milner	University College of the Fraser Valley
Dave Mitton	Langara College
Leo Neufeld	BCcupm – Chair
Susan Oesterle	Douglas College
Slava Simice	North Island College
Peggy Tilley	Camosun College
Jim Totten	University of the Cariboo
Jim Vance	University of Victoria
Tony Webb	BC Institute of Technology

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List of Committee Members Present (Discrete/Finite Math Session – Thursday, 2000-05-25)

Ian Affleck	Capilano College
Jim Bailey	College of the Rockies
Rick Brewster	Capilano College
David Casperson	University of Northern BC
Kim Chew	Columbia College
Neil Coburn	Selkirk College
Tim Collings	Technical University of BC
Natasha Davidson	Douglas College
Mirela Gutica	BC Institute of Technology
Jing Huang	University of Victoria
Fred Hughes	Camosun College
Bruce Kadonoff	Coquitlam College
Alistair Lachlan	Simon Fraser University
Clint Lee	Okanagan University College
Gary MacGillivray	University of Victoria
Nick Marsden	Camosun College
Leo Neufeld	BCcupm – Chair
Jim Totten	University College of the Cariboo

List of Committee Members Present (Math. for Elem. Ed. Session – Thursday, 2000-05-25)

Ruth Behnke	Vancouver Community College
Jane Cannon	University College of the Fraser Valley
Mohamed Chabi	Northern Lights College
Mona Izumi	Northwest Community College
David Leeming	University of Victoria
Dave Lidstone	Langara College
Jean MacLeod	Vancouver Community College
Judy Malcolm	College of New Caledonia
Casey McConill	Kwantlen University College
Susan Milner	University College of the Fraser Valley
Dave Mitton	Langara College
Susan Oesterle	Douglas College
Slava Simice	North Island College
Jim Vance	University of Victoria

List of Committee Members Present (Statistics Sub-Com. Session – Thursday, 2000-05-25)

Veda Abu-Bakare	BC Open University/Langara College
Aubie Anisef	Douglas College
Ed Butz	Okanagan University College
Bill Calver	Camosun College
Susan Chen	Camosun College
David Feldman	Selkirk College
Harry Joe	University of BC
Tony Webb	BC Institute of Technology
Susan Weber	Advanced Education Media Acquisition Centre
Larry Weldon	Simon Fraser University

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List of Participants (Meeting with Secondary School Teachers – Thursday, 2000-05-25)

Veda Abu-Bakare	BC Open University/Langara College
Robert Adams	University of BC
Ian Affleck	Capilano College
Ian Agnew	Stelly's Secondary School
Aubie Anisef	Douglas College
Jim Bailey	College of the Rockies
Ruth Behnke	Vancouver Community College
Dan Bergerud	Camosun College
Jill Britton	Camosun College
Bill Calver	Camosun College
Jane Cannon	University College of the Fraser Valley
David Casperson	University of Northern BC
Susan Chen	Camosun College
Neil Coburn	Selkirk College
Natasha Davidson	Douglas College
Betty Doherty	Lansdowne Junior Secondary School
John Fournier	University of BC
Fred Hughes	Camosun College
Mona Izumi	Northwest Community College
Bruce Kadonoff	Coquitlam College
Alistair Lachlan	Simon Fraser University
David Leeming	University of Victoria
Dave Lidstone	Langara College
Jean MacLeod	Vancouver Community College
Judy Malcolm	College of New Caledonia
Bruce McAskill	Ministry of Education
Casey McConill	Kwantlen University College
Susan Milner	University College of the Fraser Valley
Dave Mitton	Langara College
Leo Neufeld	BCcupm – Chair
Susan Oesterle	Douglas College
Slava Simice	North Island College
Wendy Swonnell	Lambrick Park Secondary School
Peggy Tilley	Camosun College
Gary Zak	Reynolds Secondary School

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List of Committee Members Present (Plenary Session – Friday, 2000-05-26)

Veda Abu-Bakare	BC Open University/Langara College
Robert Adams	University of BC
Ian Affleck	Capilano College
Jim Bailey	College of the Rockies
Ruth Behnke	Vancouver Community College
Jack Bradshaw	University College of the Cariboo
Ed Butz	Okanagan University College
John Byl	Trinity Western University
Bill Calver	Camosun College
Jane Cannon	University College of the Fraser Valley
David Casperson	University of Northern BC
Mohamed Chabi	Northern Lights College
Susan Chen	Camosun College
Kim Chew	Columbia College
Neil Coburn	Selkirk College
Tim Collings	Technical University of BC
Alan Cooper	Langara College
Natasha Davidson	Douglas College
David Feldman	Selkirk College
John Fournier	University of BC
Fred Hughes	Camosun College
Mona Izumi	Northwest Community College
Bruce Kadonoff	Coquitlam College
Alistair Lachlan	Simon Fraser University
Clint Lee	Okanagan University College
David Leeming	University of Victoria
Dave Lidstone	Langara College
Jean MacLeod	Vancouver Community College
Judy Malcolm	College of New Caledonia
Wayne Matthews	Camosun College
Bruce McAskill	Ministry of Education
Casey McConill	Kwantlen University College
Susan Milner	University College of the Fraser Valley
Dave Mitton	Langara College
Leo Neufeld	BCcupm – Chair
Susan Oesterle	Douglas College
Slava Simice	North Island College
Wesley Snider	Douglas College
Peggy Tilley	Camosun College
Jim Totten	University College of the Cariboo
Jim Vance	University of Victoria
Tony Webb	BC Institute of Technology
Andrew Wong	BC Association of Mathematics Teachers

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List of Participants (Professional Development Sessions – Saturday, 2000-05-27)

Veda Abu-Bakare	BC Open University/Langara College
Ian Affleck	Capilano College
Jim Bailey	College of the Rockies
Jack Bradshaw	University College of the Cariboo
Jill Britton	Camosun College
Martin Buck	Camosun College
Bill Calver	Camosun College
Jane Cannon	University College of the Fraser Valley
Mohamed Chabi	Northern Lights College
Susan Chen	Camosun College
David Chu	University College of the Fraser Valley
Alan Cooper	Langara College
Natasha Davidson	Douglas College
David Feldman	Selkirk College
Fred Hughes	Camosun College
Mona Izumi	Northwest Community College
Bruce Kadonoff	Coquitlam College
Clint Lee	Okanagan University College
Jean MacLeod	Vancouver Community College
Judy Malcolm	College of New Caledonia
Wayne Matthews	Camosun College
Casey McConill	Kwantlen University College
Susan Milner	University College of the Fraser Valley
Leo Neufeld	BCcupm – Chair
Susan Oesterle	Douglas College
Wesley Snider	Douglas College
Travis Taylor	ITP Nelson Publishers
Stan Toporowski	Camosun College
Tony Webb	BC Institute of Technology

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BC Colleges High School Mathematics Contest Report – Jim Totten

On May 5, 2000 the final round of the BC Colleges High School Mathematics Contest was written at 9 provincial colleges. Students who had performed well on an earlier preliminary round held within their own high schools were invited (together with a teacher sponsor) to attend the final round and spend a day the local college with several activities involved.

This year there was participation from:

College	Abbrev.
Camosun College	(Cam)
Capilano College	(Cap)
College of New Caledonia	(CNC)
College of the Rockies	(COTR)
Langara College	(Lang)
Malaspina University College	(MUC)
Okanagan University College	(OUC)
University College of the Cariboo	(UCC)
University College of the Fraser Valley	(UCFV)

The following numbers of students participated in the Final Round through each of the local colleges:

	Prelim Junior std/sch	Prelim Senior std/sch	Final Junior std/sch	Final Senior std/sch	Final Top 3 Marks Junior	Final Top 3 Marks Senior
Cam	225/9	40/9	24/9	13/9	99,82,79	87,76,60
Cap	79/8	39/8	25/6	20/6	97,94,91	81,78,77
CNC	114/11	75/11	17/11	21/11	75,71,67	64,56,34
COTR	150/6	80/3	16/4	4/1	57,50,48	94,44,36
Lang	??/6	??/6	39/6	30/6	100,99,98	87,84,83
MUC	260/7	156/7	33/7	34/7	82,75,68	86,74,72
OUC	750/33	400/33	62/27	33/27	69,64,62	80,74,58
UCC	350/17	275/16	32/14	38/13	86,80,78	45,43,43
UCFV	390/11	90/11	37/8	17/8	99,99,81	82,72,68
Total:	2318+??/108	1155+??/104	285/92	210/88		

Thanks should go to those who have been involved in organizing their own college faculty to get on board, and have also been actively enlisting the local teachers to encourage involvement of their high schools. While I don't have all the names, I will list those whose names I do know: Wayne Mathews at Camosun College; Rick Brewster at Capilano College; Judy Malcolm at College of New Caledonia; Jim Bailey at College of the Rockies; Dave Lidstone and Peter Newbury at Langara College; Patrick Ng at Malaspina University College; Clint Lee at Okanagan University College; Susan Milner at University College of the Fraser Valley; and Dennis Acreman at The University College of the Cariboo.

Furthermore, we should thank the problem posers who either submitted problems or came together at OUC last May to put together the initial draft of all four contest papers. At this point in time I no longer recall all the names of those present, as it was one of our best turnouts.

Yet another group to be thanked were those who proof-read the contest papers and offered solutions for the questions: Clint Lee (OUC), Don Desbrisay (UCC), Kirk Evenrude (UCC), John Grant McLoughlin (Memorial), and Jim Totten (UCC). I apologize if I have missed any. Solutions were ultimately prepared by Jim Totten, with corrections supplied by Don Desbrisay and Kirk Evenrude. Last, but not least, the most onerous job again this year went to Rick Brewster who took on the task of not only type-setting all four contest papers, but had to then coordinate feedback coming from several proof-readers, sometimes all suggesting conflicting ways to improve questions.

Again, apologies to anyone whose name may have been inadvertently left out.

For those planning for next year the dates for the 2001 contest are:

Preliminary Round:	March 7 (Wednesday)
Final Round:	May 4 (Friday)

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British Columbia Colleges High School Mathematics Contest (Part 2)

1. What is it?
2. Where did it come from?
3. How long has it been running?
4. What are its goals?
5. What is the general format?
6. What level of questions are posed?
7. What cost is associated with the contest?
8. What is involved for a high school to become a participant?
9. What do accompanying teachers do on the day of the Final Round?

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1. What is it?

   The BC Colleges High School Mathematics Contest is a mathematics competition held annually in the spring of each year. It consists of 2 rounds of competition.

   A Preliminary Round is held in the high schools in mid March (usually); this paper consists of 15 multiple choice questions and students are provided with 45 minutes to do the paper. The papers are then marked at the school with an Answer Key (provided) and the scores are sent back to the local College.

   A Final Round is held around the end of April (or beginning of May) at the local College. The top students from each school are invited to attend. This paper has 10 multiple choice questions and 5 full answer questions.

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2. Where did it come from?

   The contest was the brain-child of John Ciriani, now retired from the UCC Department of Mathematics and Statistics. It was started in 1973 and originally was offered only to students in the Cariboo College Region.

   The College of New Caledonia and (later) Okanagan College started up a similar contest for their College Regions. For a long time all three contests were created independently, although we plagiarized each other regularly!

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3. How long has it been running?

   In 1994 the three colleges decided that a co-operative effort would make life easier for everyone, and we thought that other Colleges would also like to join us. Thus was born the BC Colleges High School Mathematics Contest. 2000 marks the seventh year of the co-operative provincial competition.

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4. What are its goals?

   Although as committee we have not actually written out our goals, I believe they would include the following:
   (a) To foster and nurture a love for mathematics
   (b) To let students who do well in mathematics know that they are not alone, and that doing well in mathematics is quite acceptable
   (c) To find and challenge students with interesting problems that make them think, and to which the answers should not be obvious
   (d) To establish and maintain contacts between College Mathematics teachers and High School Mathematics teachers
   (e) To provide an opportunity for a subset of High School Mathematics teachers to discuss current issues and/or receive some professional development
   (f) To raise the profile and image of the Colleges and University Colleges in the province in the minds of high school students

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5.   What is the general format?

As indicated above the Preliminary Round consists of 15 multiple choice questions to be written in a 45 minute block; these are marked at the school by a teacher (or teachers) using an Answer Key (provided). The top students from each school are then invited to the Final Round held at the local College.

The Final Round consists of 10 multiple choice and 5 full answer questions within a 2 hour time limit. These are marked immediately, and the top students are recognized at some form of presentation ceremony before all students depart.

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6.   What level of questions are posed?

We try to pose questions of varying levels of difficulty. The objective is that there ought to be questions that can be done by any student, but there should also be questions that only a few students will be able to solve. NOT all the questions will be a tough challenge.

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7.   What cost is associated with the contest?

There is no cost to a school or a school district with the exception that we would like a teacher to accompany the students to the Final Round, and this will likely result in a substitute being called in for a day.

For a College there is a cost: typically the College would incur mailing costs, the cost of a lunch and (possibly) an early supper, as well as any prizes that would be given out for performance. If the College brings in an outside speaker, those costs would also need to be covered.

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8.   What is involved for a high school to become a participant?

For a high school to become a participant it requires at least one teacher to make a commitment to the local College to ensure that a number of things happen within given time constraints:

-   be a contact person for the local College
-   determine the number of students who wish to write the contest
-   find an appropriate time and place for those students to write the contest on the appointed day
-   mark the Preliminary Round (multiple choice) with a provided Answer Key
-   report the results of the Preliminary Round to the local College
-   select the students to attend the Final Round
-   ensure that the students from your school arrive at the Final Round and get home again safely

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9.   What do accompanying teachers do on the day of the Final Round?

Most of the Colleges will have some activity ranging from formal or informal discussions of current educational topics to professional development while the students are engaged in writing the contest.

After the contest is written and lunch is over, each College puts together a short afternoon program of activities for both teachers and students. They vary from talks and demos to more competitions.

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Ministry of Education - Bruce McAskill

Mathematics 10 to 12 and Mathematics 8 and 9 IRPs

Secondary schools should now be receiving their copies of the **Mathematics 10 to 12 IRP**. This document contains the Western Canadian Protocol aligned curriculum for both **Applications of Mathematics 10 to 12** and **Principles of Mathematics 10 to 12**. It also includes the newly developed **Essentials of Mathematics 10 to 12** and **Calculus 12** curricula.

In response to recommendations made by the Mathematics Task Force a revised **Mathematics 8 & 9 IRP** will start development this September 2000. The revised IRP will be based upon the Western Canadian Protocol Framework and will include two courses, **Mathematics 8** and **Mathematics 9**. Both of these courses will identify a subset of the prescribed learning outcomes that focuses on the development of *numeracy*. There will be very little change to the Mathematics 8 curriculum as it is presently WCP based. The most significant change is that there will be a single Mathematics 9 curriculum (in place of the present Applications of Mathematics and Principles of Mathematics 9). Those teachers concerned about the loss of Mathematics 9A should note that the intent of identifying the numeracy subset of outcomes for Mathematics 9, is to provide a basis for teachers to address those students' needs. Implementation of these courses is as follows:

MATHEMATICS 8 - 12 IMPLEMENTATION SCHEDULE [1]	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
Mathematics 8 & 9 [3]			✓		
Applications of Math 10 to 12	Gr. 10 Recommended	Gr. 11 Recommended	✓ Gr. 10 to 12		
Principles of Mathematics 10 to 12	Gr. 10 Recommended	Gr. 11 Recommended	✓ Gr. 10 to 12		
Essential of Mathematics 10 to 12			Gr.10 [3]	Gr.11 [3]	✓ Gr.12 [2]
Calculus 12 [2]		✓			

[1] For examinable courses, exams are available starting with the school year of implementation
[2] There is no provincial exam for this course
Mathematics 9A, 10A, 11A & Introductory Mathematics 11 will no longer be Provincial Curriculum as of the following dates:

- Mathematics 9A - August 2001

- Mathematics 10A - August 2001

- Mathematics 11A - August 2002

- Introductory Mathematics 11 - August 2002

As of 2002/2003 students who successfully complete Application of Mathematics 11, Essentials of Mathematics 11 or Principles of Mathematics 11 will meet the British Columbia Mathematics graduation requirement.

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Mathematics Task Force Workplan Update

The Ministry of Education has initiated a number of projects in response to the *Report of the Mathematics Task Force*. The following is a summary of the projects which are in progress.

- **Essentials of Mathematics 10 - 12 Curriculum Development -** As noted previously, curriculum development is complete and the final version of *Essentials of Mathematics 10 - 12* will be included in the Mathematics 10 - 12 IRP. Schools may choose to implement the Essentials of Math courses beginning September 2000. To assist schools with this implementation, the Ministry has distributed teacher developed learning resources created for a Manitoba curriculum which has a 90 percent match to the Essentials of Math.

- **Mathematics 9A, 10A, 11A, and Introductory Mathematics 11 -** Schools will continue to have the option of offering the A-stream courses until the Essentials of Mathematics courses are formally implemented. Alternatively, schools may implement the Essentials of Mathematics courses as a replacement for the A-stream courses prior to the formal implementation date.

- **Mathematics 9: A Resource for Teachers -** The Curriculum Branch has distributed to secondary schools sample components from this new teacher resource. This resource can be used to support teacher in-service that focuses on changing instructional practice in a single combined Mathematics 9 course. It is anticipated that the complete final version of *Mathematics 9: A Resource for Teachers* will be available for distribution by September 2001.

- **Teacher Tuition Rebate for Teachers of Mathematics (K to 12) -** The Ministry has completed discussions with university and university-college Faculties of Education throughout the province to identify courses (in elementary and secondary mathematics) that provide instruction on:

  - the teaching of the conceptual and procedural knowledge necessary to develop a sense of numeracy (including problem solving);
  - teaching with technology, and
  - assessment, diagnosis and intervention techniques for students who experience learning difficulties in mathematics.

  Beginning July 2000, the program will offer tuition rebates of up to $240 per approved credit or non-credit course, limited at two rebates per teacher per year. The maximum number of rebates is 1000 per fiscal year. Simon Fraser University, University of British Columbia, University of Northern British Columbia, University of Victoria and Malaspina University-College are the participating institutions offering mathematics courses approved by the Ministry as qualifying for the program.

  Details of this tuition rebate have been distributed to schools and are also available from the various Faculties of Education and the Curriculum Branch website at: http://www.bced.gov.bc.ca/taskforce/

- **Definitions of Numeracy and Problem Solving -** Effective immediately the Ministry will incorporate the definitions of *Numeracy and Problem Solving*, developed by the BC Association of Mathematics Teachers and the National Council of Teachers of Mathematics respectively, into Ministry publications.

- **Letter to Superintendents -** In October 1999 a letter was sent to all school superintendents informing them of the recommendations made by the Mathematics and Social Studies Task Forces. The recommendations referenced include the following:

  - that the Ministry encourage school districts to designate teachers or administrators in each school or district as specialists (for the purpose of providing strong leadership in communicating information regarding resources and professional development opportunities); and,
  - that school districts utilize Recommended Learning Resource Funds and the Implementation Training Grant in a planned and timely fashion so as to support teachers in the implementation of the curricula as intended, and that they communicate these plans to all their education partners.

- **Numeracy -** The Ministry is planning a number of projects which are intended to educate teachers and parents concerning numeracy and to assist them in enhancing our students' growth in numeracy.
  <u>Emergent Numeracy Research</u> - The Ministry will identify, through a Request for Proposal (RFP) process, a researcher who will work with school districts to identify tools to assist elementary teachers in the identification of children in the early school years, who are at risk with respect to developing their emergent numeracy skills and concepts, and to identify

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specific strategies that teachers and parents can use to address the deficiencies of these children and enhance their growth in numeracy. This research project is anticipated to start September 2000.

Identification of Numeracy Learning Outcomes - The Curriculum Branch will work with educators to identify the learning outcomes in the Kindergarten to Grade 9 Mathematics curriculum that focus on numeracy. The Grade 8 and 9 component of this project will start September 2000 with the K to 7 component is anticipated to start September 2001.

Numeracy and Course Information for Parents and the Public - The Curriculum Branch will collect information from the various numeracy projects and incorporate it into Ministry publications including; *Better Learning*, the *Curriculum Handbooks for Parents*, a possible Numeracy brochure, future Integrated Resource Packages (IRPs), etc. The Curriculum Branch will also develop information to inform students, parents, counselors, and teachers concerning the three different mathematics pathways at the secondary level (Applications of Math, Essentials of Math, and Principles of Math).

This will include information related to:
− course descriptions;
− which students each pathway is intended to serve; and
− career and post-secondary education options available related to each pathway.

It is anticipated that the secondary mathematics course information will be developed and distributed by September 2001. The Numeracy information can not be collected until the related Numeracy projects have been completed.

- **Mandating Applications of Mathematics -** The Ministry is currently consulting with the Education Advisory Council (EAC) on the possibility of mandating the teaching of Applications of Mathematics in secondary schools. A number of options are being considered.

- **Applications of Mathematics: Learning Resource Subsidy** - The ministry is offering school districts a subsidy for learning resources purchased to implement Applications of Mathematics 10, 11, and 12. The subsidy is for 50% of the cost of the student materials as well as the teacher support materials developed by Pearson Publishing in partnership with the Western Canadian Protocol (WCP) jurisdictions. These learning resources have a 100% match with the revised Applications of Mathematics 10 to 12 curriculum presently being distributed to schools. The following are the specific learning resources that qualify for subsidization (along with the maximum amount of the subsidy):

Details concerning the Applications of Mathematics Learning Resource Subsidy have been sent to Superintendents and School Principals.

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BCAMT – Andrew Wong

1.   Numeracy Initiatives
   - Brochure (handout): position, definition, aspects, teaching & directions
   - Workshops - they have trained and/or are training members to run workshops for the general public and for K-12 teachers. There are several packages (data, geometry, reasoning, etc.) and levels.
   - Suggestions for outreach, spreading the message, PR
2.   BCAMT – Texas Instruments Educational Collaborative
   - Purpose and objectives
   - TI training group - they have arranged to train some number of teachers to run TI workshops (TI pays all expenses). These "trainers" will then present the workshops to teachers across the province.

3.   BCAMT Database
   - Purpose
   - Form for completion (handout)

4.   39th Northwest Mathematics Conference
   - October 19-21, 2000 in Victoria
   - Program and registration form (handout)

5.   BCAMT Web Site: www.bctf.bc.ca/BCAMT
   - Linkages or information postings welcome (contact our President, Kanwal Neel at kneel@richmond.sd38.bc.ca or our web manager, Doug Sly at dsly@netidea.com)
   - BCAMT listserv

6.   New NCTM Standards 2000
   - Copy for circulation
   - Order form (handout)
   - Movement towards more relevance, meaning and application, but also reinforces the need to study and understand basic numeracy, algebra, geometry, measurement, data analysis and probability, problem solving, reasoning, proof

7.   BCAMT Publications
   - Vectors for circulation
   - Copies of Newsletter (handout)
   -                         note goals and objectives

8.   IRP Response
   - Responses to Ministry's IRP drafts for Mathematics 10-12 (includes Principles, Applications and Essentials)

9.   MathCounts Competition

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ABE - Ruth Behnke

- Demand for college ABE Math courses continues to be strong. Wait-lists for many classes are now quite common. ABE programs are faced with the challenge of trying to accommodate this demand. A recent revision of the Colleges and Institutions Act now makes it mandatory for colleges to provide ABE programs.

- This is the first year of implementation for the BC Adult Graduation Diploma which replaces both the previous school district Adult Dogwood and the college ABE Provincial Diploma. The new diploma, also known informally as "the Adult Dogwood", is a joint document signed by both the Minister of Advanced Education, Training and Technology and the Minister of Education. It allows students to mix and match courses from the two systems and apply them towards the credential. The Universities are in the process of developing their respective admissions policies regarding this Adult Dogwood. It is anticipated that Admissions Committees will accept the new common credential as fulfilling general admission requirements, but students will still have to meet specific pre-requisites for courses or programs. Students who are upgrading need to be aware that some universities still do not accept upgraded or repeated courses. Only the first mark on their transcript will be considered.

- It remains clear that it would not be appropriate to require college ABE students to write Provincial Exams.

- This year's ABE Math Articulation Committee Meeting was held at Kwantlen, March 2-3. As requested by BCCAT, the committee moved to include a school district ABE Math representative at its future meetings. Guest Speaker, Bill Kokoskin, Math Dept. Head at Handsworth Secondary in North Vancouver gave a summary of recent changes in secondary math courses based on the Western Canadian Common Curriculum Framework and discussed the new textbooks that are available for this curriculum. Some colleges are contemplating textbook changes for their provincial level Math courses (Math 12 equivalence). The challenge is to find a text which would be suitable for both self-paced and class-based modes of instruction.

- A Statistics unit has been developed for the Advanced Level ABE Math through funding from the Centre of Curriculum, Training and Technology (CCTT). The module is currently being piloted and should be available through OLA by September, 2000.

- Ada Sarsiat from Northwest Community College and Pat Corbett-Labatt from North Island College are the new co-chairs of the ABE Math Working Committee. A list-serve for ABE Math instructors has been established through the Centre.